

The Mining Journal

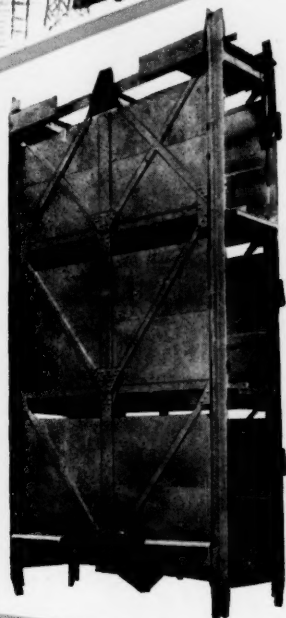
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Railway & Commercial Gazette

Vol. CCXXXVIII No. 6485

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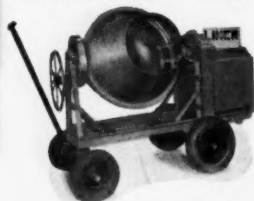
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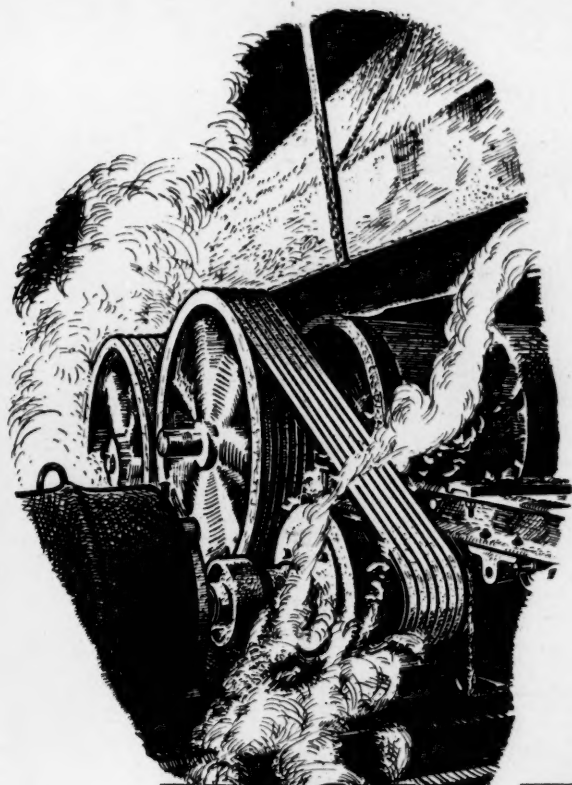
Emergency case-hardening steels

MECHANICAL PROPERTIES			"STANDARD" STEELS B.S. 970		"EMERGENCY" STEELS ADDENDUM No. 1 B.S. 970	
TENSILE STRENGTH		Izod Impact ft.-lb. min.	En No.	Type	En No.	Type
t.s.i.	kg/mm ²					
40-60	63-94	50	37	5% Ni		
45 min.	71	40	33	3% Ni		
"	"	"	34	2% Ni-Mo (lower C.)	351	1% Ni-Cr
"	"	30			361	"15" carbon low-alloy
"	"	25				
55-75	86-118	35	36T	3% Ni-Cr		
55 min.	86	"	325	Low Ni-Cr-Mo		
"	"	25	35	2% Ni-Mo (higher C.)	352	1% Ni-Cr
"	"	20			362	"20" carbon low-alloy
"	"	15				
65-80	102-126	30	36V	3% Ni-Cr		
65 min.	102	"	38	5% Ni		
"	"	20			353	1% Ni-Cr
"	"	—			363	"25" carbon low-alloy
75 min.	118	20			354	1% Ni-Cr
85 min.	134	25	39A	41% Ni-Cr		
"	"	"	39B	41% Ni-Cr-Mo		
"	"	"	320	2% Ni-Cr-Mo	355	2% Ni-Cr-Mo (low-Cr)
"	"	"				

Eight new specifications for case-hardening steels have been issued by the British Standards Institution. The new steels are intended to replace, as an emergency measure, the more highly alloyed case-hardening steels in current use.

The table gives details, based on mechanical properties, of the new economy steels which are alternative to the standard alloy steels. Many of these standard steels will again be available when the present situation has passed.





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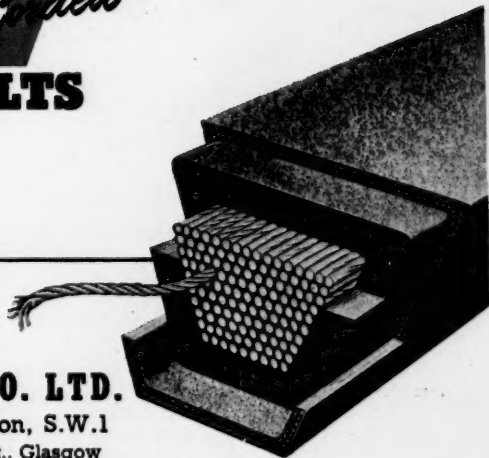
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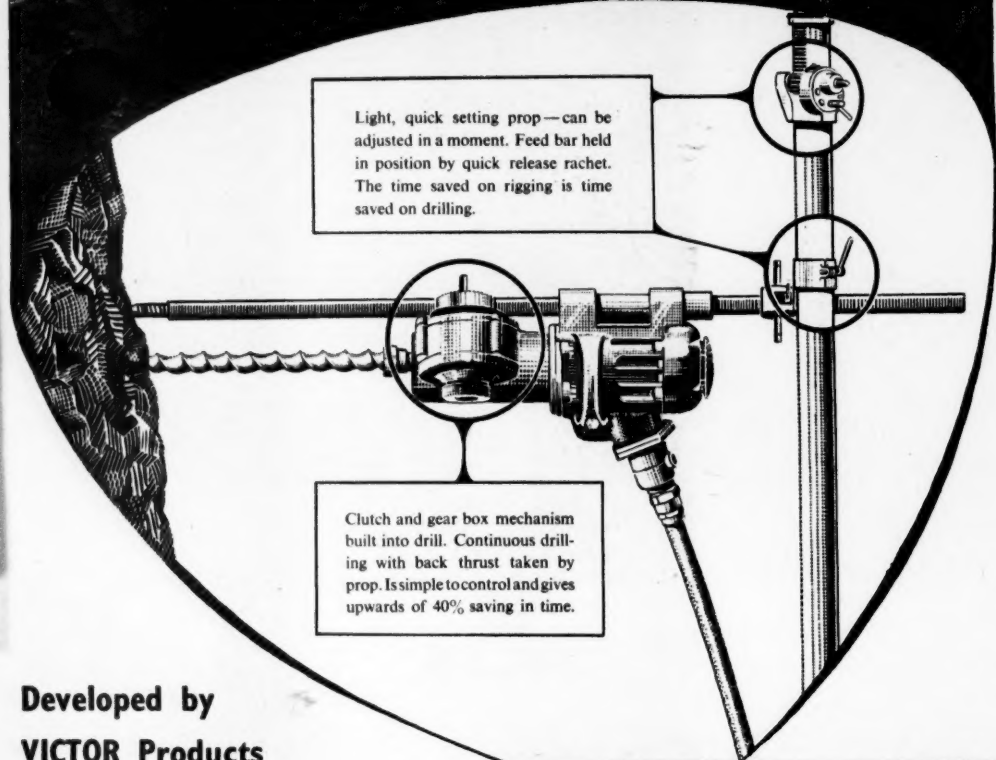


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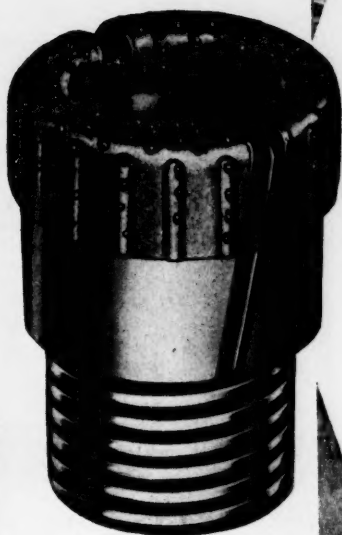
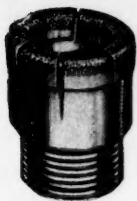
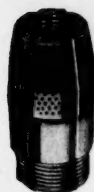
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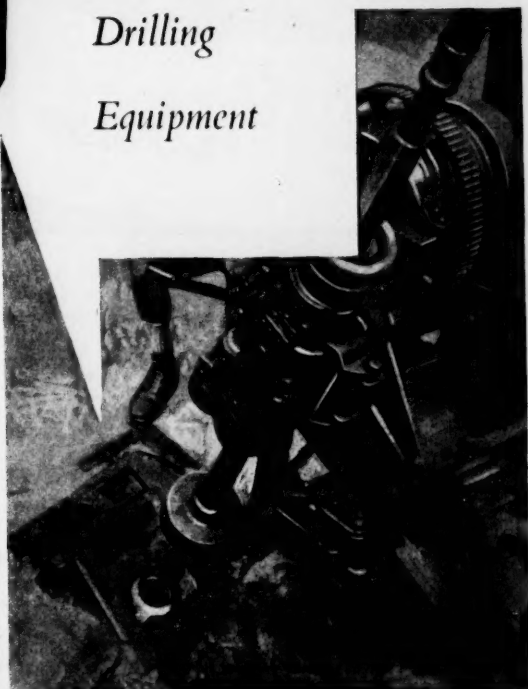
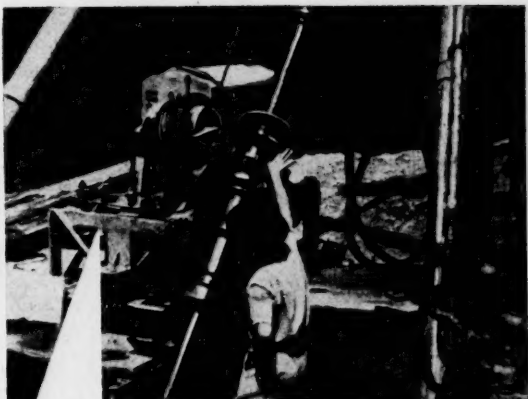
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The Mining Journal

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Vol. CCXXXVIII No. 6085

LONDON, APRIL 4, 1952

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Published by The Mining Journal Ltd. at 15, George Street, London, E.C.4.

Subscription £2 per annum (post free)

NOTES AND COMMENTS

The Finance Bill

Consideration of a Finance Bill is never easy and the one published towards the end of last week must rank as one of the most difficult, this is because it introduces the Excess Profits Levy, with a multitude of special provisions, and because it attempts to give effect to some of the recommendations of the Millard Tucker Committee on Taxation.

The framers of the Bill will have much to answer for to the mining industry. The adoption of the three year period 1947, 1948, 1949 as a basis for calculating standard profits is thoroughly bad, reflecting as it does the period during which a large proportion of the British overseas mining companies were still actively concerned with the problems of rehabilitation and also includes the pre-evaluation period before the price of gold was raised to its present level.

The British Overseas Mining Association's view of the Excess Profits Levy as defined in the Finance Bill was that its terms were a bitter disappointment to the industry and that the concessions which have been made to mining companies did not to any degree meet the problems of the industry.

The Bill should, therefore, be subjected to detailed criticism when it is debated in the House and for this reason the exposition of the more important clauses of the Bill as it affects the mining industry, found on the page overleaf, must be regarded as only tentative.

Copper and Slate Developments in the Sonoia District, S. Rhodesia

At least four years are likely to elapse before newly mined copper from the Lomagundi district of Southern Rhodesia reaches the market, states a recent report emanating from Southern Rhodesia House. The copper mining possibilities of the Lomagundi District have been systematically investigated over the past five years by Rhodesia Copper Ventures who hold an exclusive prospecting reservation centred around the Molly claims, about 35 miles

north of Sonoia, on which development work is now being carried out to prove the results of preliminary drilling on these claims.

At present no one can do more than guess at the extent and value of the deposit, although there would appear to be fair prospects of a large mine coming into operation by 1956. So far, the company itself has been careful to maintain a discreet silence on its activities, states the report, until its hopes have been conclusively proved by actual development. But in a statement issued on March 7, the company said that while it was too early to make any definite statements, exploration work was still continuing in the Sonoia District and should there be any information of interest to the public, the company would make an appropriate statement.

In a three mile range of hills in the Sonoia District, some 80 miles from Salisbury, a 500,000 ton slate deposit was recently discovered by a Salisbury geophysicist during an investigation of mining claims at Sonoia. A contractor has already started quarrying the deposit, and it is hoped that the first consignment will arrive in Salisbury before the end of April. Hitherto, Southern Rhodesia's supplies of slate have come from the Union.

Yugoslavia to Increase Production of Non-Ferrous Metals

Four new lead-zinc mines are to be opened in Yugoslavia this year, each having a daily output of 1,000 tons of ore, states the country's leading paper, *Borba*, in an article on the progress of Yugoslavia's non-ferrous metallurgical industry; and another two lead-zinc mines will start production at the beginning of next year. Also, two new antimony flotation plants will this year be added to the existing two. In this connection it may be pointed out that Yugoslavia is still the only European country to have antimony flotation plants. Other new features in the field of non-ferrous metal production are that the mining of wolfram will begin in Eastern Serbia by the end of the year, and that some gold will be obtained as a by-product both from here and from some of the new lead-zinc mines.

Mining Provisions of the Finance Bill

The following are the main provisions emerging from the Finance Bill directly affecting mining companies.

Clauses 16 to 19 of the Bill are much in line with paragraphs 240 to 245 of the Millard Tucker Report. Hitherto a mining concern has been entitled to an allowance for exploration expenditure only if the exploration was in the same mineral field or petroleum province. The Committee recommended that such expenditure should be allowed provided that it is incurred in searching for a mineral which the company is already working. As Clause 16 stands, it looks as if the allowance will be granted to exploration carried out in fields other than normal, and on minerals other than those usually worked. The allowance is not to be given to prospecting companies.

Owing to a peculiarity in the Income Tax Acts, expenditure on exploration could, in certain circumstances, rank for relief, but certain items of plant and machinery failed to qualify. This is being rectified in Clause 17 of the Bill. Similarly, Clause 18 intends to remedy the grievance felt by companies operating overseas, when they have to acquire land for works or dumps and not for the purpose of extracting underlying minerals. Clearly this land is of little or no value when the concession comes to an end, and the matter is to be dealt with by a balancing allowance in the light of the position when the mine stops working or the concession comes to an end.

Expenditure on native housing projects has been subject to depreciation allowances as industrial buildings. Depreciation of offices, on the other hand, was not allowed, nor was the expenditure on public services in undeveloped countries. These three items—housing, offices and public services—will now be dealt with under Clause 19. This provides that an allowance shall be made, and that it shall be equal to one-tenth of the expenditure on these items, including welfare services, for each of the ten relevant years of assessment. The section will apply neither to expenditure incurred before the beginning of the year 1952-53, nor to expenditure allowed under some other section. The expression "the ten relevant years of assessment" means the year of assessment for which the expenditure was incurred, and each of the nine succeeding years of assessment.

EXCESS PROFITS TAX

Henceforth profits must be mentally separated into two component parts: standard profits and excess profits. In general, standard profits will be the average of the taxable profits in the calendar years 1947, 1948 and 1949; but there will be important additions, which will be considered later. Excess profits, quite simply, are those profits which are not standard. Income tax is to be levied on the standard taxable income at the rate of 9s. 6d. in the £ and profits tax at the rate of 6d. in the £. This makes company taxation of 10s. in the £ on standard profits.

Excess profits tax will be levied at 6s. in the £ on the amount by which taxable profits exceed standard profits. Thus, tax on standard profits will be 10s. in the £, and on excess profits 16s. in the £. Two limits have been set: the first is that the companies are free to choose £2,000 as their standard profits and the second is that the amount of excess profits levy payable shall not exceed 18 per cent of all taxable profits; standard and excess together. In practice, this limit will operate if excess profits are equal to at least one and one-half times the standard profits. Or, put in another way, it will operate if standard profits are 40 per cent, or less, of the taxable profits.

So far, we have considered only the rates of tax payable if the company makes no distribution. On any amount

distributed, whether coming from standard or excess profits, a sum of 15 per cent must be paid. This 15 per cent is calculated on the gross amount of the distribution, and not on the net amount paid out to shareholders. To be absolutely precise, profits tax will be levied at 17½ per cent on all taxable profits, and a rebate of 15 per cent is allowed on all undistributed profits. The result is the same as considering the tax to be 2½ per cent on undistributed profits and 15 per cent on distributed profits. The average rate of tax payable depends on two variables: the amount of excess profits and the amount distributed.

For simplification, it has been assumed so far that the standard has been agreed. But there are the adjustments mentioned earlier to be made. A company can elect to substitute 8 per cent on the average issued capital during a year in place of the taxable profits of that year. This substitution can be made for either one or two years out of the three which make the standard period, namely 1947, 1948 and 1949. The company also has the choice of making its standard profits equal to 10 per cent on its paid up capital at the end of the standard period. If new capital has been issued—for cash or for other valuable consideration—the company can add 10 per cent of the new paid-up capital plus any premium in calculating the standard. The company can also add to the standard profit an amount equal to 10 per cent of any undistributed profits beginning with January 1, 1948, and ending twelve months before the end of the chargeable accounting period.

Where the directors of the company have a controlling interest, that is to say, if they are in a position by reason of holding shares or votes to conduct the affairs of the company as they wish, the percentages mentioned in the preceding paragraph shall be increased by a further two points, that is to say the 8 per cent shall be interpreted as 10 per cent and 10 per cent as 12 per cent.

AMORTIZATION ALLOWANCES

The Chancellor has recognized the wasting nature of metal mines and oil wells; for some unexplained reason, apparently, not those of non-metallic minerals. In clause 47 the Chancellor has increased the percentages which can be added to the standard profits. These he has linked with the life of the mine, but there is a curious phrase, "the working of any source of mineral deposits consisting of mines of metal or oil wells." This phrase which starts so promisingly seems to be unduly restrictive. Those companies which come into the definition will be able to add another four points to their standard profits if the estimated life of the source is not more than thirty years and two points if the estimated life is more than thirty but less than sixty. The practical effect of this concession is to raise any allowance of 8 per cent granted to a, say, industrial company to 12 per cent if it is a mining (metal) or oil concern with a life of not more than thirty years. Any allowance of 10 per cent becomes 14 per cent and 12 per cent becomes 16 per cent. If the life of the mine is between 31 and 60 years, 8 per cent for a general company will become 10 per cent; 10 per cent becomes 12 per cent and 12 per cent becomes 14 per cent.

The Bill as drafted seems to be deliberately imposing double taxation on investment income. The Eighth Schedule deliberately includes franked investment income, so that the levy will have to be paid on income which has already been subject to the levy in the hands of another. The most charitable view is that this change is the result of a mistake, though that is hard to believe in view of the language used in the Eighth Schedule.

South Africa

(From Our Own Correspondent)

Johannesburg, March 28

Although there are no signs of any relaxation of the security measures applying to uranium production here, the past month has seen the disclosure of yet further information by the Minister of Mines on developments in this country. The first and main one is that the scale of production is to be triple that originally envisaged when the first agreements were concluded in 1950. From this it can be deduced that at least 12 mines are going to undertake this work, of which several will be in the Free State as well as one or two more on the Far West Rand.

The other important item is that the erection of the necessary plants for those properties already involved in the scheme is well ahead of schedule, and the first one should be operating early in May. This can be assumed to be West Rand Consolidated, which was expected to start up during the second half of the year. Furthermore, the indications are that the other plants have also been going up at the same rate and that they will also be in operation in advance of the originally estimated dates. This has been confirmed by the Minister of Finance's reference to increased revenue accruing to the mining industry from uranium production during the current financial year.

CHARTING URANIUM-BEARING FORMATIONS WITH SPECIAL GEIGER COUNTER

On the technical side much interest has been aroused by the work of radiometric logging of the Upper Witwatersrand series by Dr. D. J. Simpson. Using a specially constructed Geiger counter, six in. long and one in. in thickness, he has charted the uranium-bearing formations in a large number of boreholes by moving the instrument up and down boreholes on the end of a plastic covered piano wire.

Apart from providing valuable information of the extent and nature of the uranium deposits in these formations—which are most prominent in the Far West Rand, Klerksdorp and O.F.S. fields, this system of logging may bring about a great change in prospecting operations in the future. Dr. Simpson actually arrives at the conclusion that, had the information now gained been available in the hectic early days of drilling in the Free State, which involved the expenditure of millions of pounds, the number of boreholes would have been considerably less.

In a number of cases, a very close correlation between the gold and uranium contents of a particular reef formation has been obtained. It is now held that facies changes do not appreciably affect the radiometric log. In the southern portion of the Free State gold fields, abnormal conditions of deposition of sediments exist, including scouring during sedimentary breaks and possible foldings, and have resulted in normal conglomerate varying over short distances and degenerating into grits or even quartzites.

POTENTIALITIES OF RADIO-METRIC LOGGING METHOD

The method of radiometric logging is considered to have great potentialities as a tool to facilitate the work of the geologist in problems of correlation. It should be possible to adapt the existing equipment to the exploration of overhead or oblique boreholes underground. This type of work would be of particular help in horizons such as

the Leader reef, where several conglomerates are involved. It is predicted by Dr. Simpson that each of the component reefs will be found to have its own characteristics easily recognizable from the log. With this method of exploration it may well prove possible to dispense with core drilling and use non-coring or even long jumper holes.

In boreholes where the reef is friable, core losses are frequent, and in some cases no gold values are obtained from intersections of high-grade carbonaceous partings. Radiometric logging has in such cases readily delineated the parting and allowed complete core recoveries to be obtained in deflections.

Of probably the greatest importance is the relationship between developed uranium content being associated with similar gold development. It is well-known that the gold content may fluctuate rapidly, but it has been found that in such cases there may be only minor sympathetic fluctuations in uranium content. The possibility therefore exists that a borehole, which is taken as a sample covering a relatively large area, may intersect the reef where the gold content is low at that particular point. If the general uranium content is high, says Dr. Simpson, both in this borehole and elsewhere, the possibility exists that the reef in this area, when examined underground, may prove on the whole to be gold-bearing.

IMPORTANT SHAFT SINKING OPERATION

The biggest shaft-sinking job in South Africa and, so far as can be gathered, in the world, has just been finished at No. 1 shaft Freddie's North. Completed at a depth of 5,973 ft. below the collar, the actual area of the shaft excavation is 14 ft. by 50 ft., and the dimensions inside the concrete casing are 11 ft. by 47 ft.

The job, which took three years and four months involved the hoisting of 360,000 tons of rock and a total 60,000 cu. yd. of concrete were used to line the shaft. So far as shaft equipment is concerned, 12 miles of guide rails, supported by 4,000 buntons, were installed, together with 7½ miles of piping, and it is estimated that the kibbles did 500,000 trips from the start to finish.

During the last few years the large-scale export of base minerals by South Africa has provided her with a valuable source of foreign exchange, particularly of dollars. It seems now, however, that this will not be allowed to continue indefinitely—even although the world demand remains at a high level. Dr. F. Meyer, chairman of I.S.C.O.R.—the State-sponsored iron and steel corporation—has issued a warning regarding the Union's manganese sources in particular, but which applies to a number of these minerals used for special steels in a lesser degree.

QUESTION OF MANGANESE EXPORTS

He says that the known resources of high grade manganese ore can meet the present rate of consumption of the Union's iron and steel and metallurgical industry for many years to come, but the present rate of consumption will undoubtedly still rise as time goes on, so that the life of the reserve will decrease proportionately. If, in addition, the Union continues to export the best grades of ore at the present high rate, then she will be rapidly moving towards the position when she in turn will have to import high-grade manganese supplies in the not so distant future. From the broad national point of view, continued Dr. Meyer, the question of this increasing rate of export, particularly of the high grade ores, requires a very careful consideration.

This situation also exists in varying degrees in regard to chrome ores, tungsten ores, molybdenum and similar materials.

The United States Stockpiling Progress

In its report on stockpiling progress during the second half of 1951, the United States Munitions Board states that during this period the rate of acquisition fell to \$357,000,000 worth of material, compared with deliveries totalling \$462,000,000 during the previous six months. On the basis of current prices, strategic and critical materials in the stockpile inventory were valued at \$3,439,717,480 as at December 31, 1951. At that date an additional \$2,209,247,786 worth of materials was scheduled for future delivery to the stockpile under outstanding contracts. The total of \$5,648,965,266 worth of materials in the inventory and under contract compares with total stockpile objectives valued at \$9,298,906,664 at present market prices.

INCREASING RATE OF EXPENDITURE

In his recent Budget message to Congress, President Truman expressed the hope that the stockpile might be raised to \$5,000,000,000 by June 30, 1953. This would involve a rate of expenditure nearly 50 per cent higher than that incurred during the second half of last year. It is not clear, however, to what extent supplies will be forthcoming under existing rates for future deliveries, so that it is impossible to gauge the probable impact of the suggested increase in expenditure on markets and prices.

The reduced rate of acquisition during the second half of last year was ascribed mainly to the increase in direct military and defence supporting requirements as the mobilization programme expanded, coupled with the lack of any corresponding increase in supplies and, in some instances, decreased supplies. Another contributory factor was that in order to maintain the total national economy at a relatively high level, the stockpile was accorded a lower priority than the continuation of sufficient civilian use of scarce materials. The General Services Administration was directed by the Defence Production Administration to divert to industry scheduled deliveries of a number of materials covered by stockpile contracts, or to hold such deliveries in special reserves for future distribution to industry.

The materials affected by such directives included 45,000 s.tons of aluminium, 100,000 lb. of columbite, 163,500 s.tons of copper, 8,000 s.tons of acid grade fluorspar, 6,000 s.tons of lead, 9,900 l.tons of metallurgical manganese ore, 2,200,000 lb. nickel, 1,788,000 lb. tungsten, and 26,900 s.tons of zinc. This represented a loss of more than \$120,000,000 worth of materials to the stockpile. The shortage of some materials became so acute that quantities already in the stockpile were released for allocation to industry. Such releases included 10,000 s.tons of aluminium, 55,000 s.tons of copper, and 30,000 s.tons of lead.

Continued efforts have been made under the Defence Production Act of 1950 to expand the production of strategic and critical raw materials. Long-term contracts will result in a substantial increase in the production of aluminium, copper, acid grade fluorspar, manganese, molybdenum, titanium and zinc. The production of cobalt, columbite-tantalite, graphite, lead, mica, nickel, tin and tungsten will be expanded. Another direction in which supplies are being augmented is by the reactivation of Government-owned and other stand-by facilities, which has already led to an increased production of aluminium, magnesium and synthetic rubber. It is expected that the production of nickel from the Government-owned facilities in Cuba will commence early this year.

Since its inception the Economic Co-operation Administration has committed a total of \$109,200,000 for develop-

ment projects. During the last six months of last year the equivalent of \$59,385,416 was committed for prospecting and developing sources of strategic materials in E.C.A. areas, as well as for the expansion of production. Projects mentioned in the report include industrial diamonds in British Guiana and French East Africa; bauxite in Jamaica, Greece and Netherlands; copper and asbestos in Northern and Southern Rhodesia respectively; aluminium in France, Germany, Denmark and Norway; chromite in New Caledonia; copper-lead-zinc in French East Africa; beryl in French Morocco; fluorspar in Germany; lead-zinc in Greece and Italy; manganese in Greece, and tungsten in Portugal.

Since the last report to Congress, Jamaica Bauxite Ltd. have made their second repayment, amounting to 1,243,432 lb. of aluminium metal, against E.C.A. advances. Société des Mines de Zéridha have delivered 2,000 tons of lead and 400 tons of zinc as their first repayment of E.C.A. advances to increase production of these commodities in French Morocco. An initial repayment of 6,365 ct. of industrial diamonds has been received from French Equatorial Africa. As a whole, the development projects have been progressing very well and many repayments of E.C.A. advances are due to start this year. The foreign development functions of E.C.A. have been extended to cover areas outside the Marshall Aid countries.

As part of its financial activities during 1951, the Export-Import Bank of Washington established credits totalling \$38,000,000 to assist in the production in Latin America of manganese and tungsten concentrates for the stockpile under long-term contracts. At the end of the year, applications were under consideration for credits totalling more than \$15,500,000 to assist in production for the stockpile of copper, lead, manganese, tantalite and zinc.

In order that no reasonable opportunities to acquire strategic and critical materials should be lost, many stockpile purchase specifications have been revised, so as to admit additional forms and grades which had previously been considered less desirable for stockpiling due to their limited application or for storage reasons. The metals and minerals affected include amosite and crocidolite asbestos, refractory grade bauxite, cobalt, raw quartz crystals, acid grade fluorspar, amorphous lump graphite, iridium, kyanite and mullite, lead, platinum, and tungsten powder.

U.S. EXPORTS OF SCARCE MATERIALS SEVERELY LIMITED

Under its export control authority, the Office of International Trade severely limits the quantities of critical and scarce materials which may be exported from the United States. In exercising this authority it not only safeguards domestic supplies but also channels such materials to urgent and essential end-uses abroad. Thus, it provides export supply assistance to satisfy the vital needs of many "projects" located abroad. Licensed foreign projects are at present furnishing the United States with all its industrial diamonds, 95 per cent of its bauxite, 90 per cent of its tin and manganese, 50 per cent of its vanadium, monazite, zirconium and rutile, 32 per cent of its copper, 25 per cent of its lead, 22 per cent of its zinc, 20 per cent of its tungsten, and significant amounts of many other critical materials. Prohibited exports include all or specified forms of aluminium, cadmium, cobalt, copper, diamonds, graphite, kyanite, lead, magnesium, manganese, molybdenum, nickel, platinum, tin, tungsten and zinc.

The Secretary of the Interior, through the directors of the Bureau of Mines and the Geological Survey, is directed

by the Stockpiling Act to make scientific, technological and economic investigations to improve the availability of strategic materials within the United States. Mineral exploration has been expanded through assistance to producers and potential producers in the form of loans, purchase contracts, accelerated tax amortization, priorities on equipment and supplies, and access roads.

LARGE ALUMINA CLAY RESERVES FOUND

Large reserves of high-alumina clay, a possible source of aluminium, were proved as a result of joint investigations by the Geological Survey and the Bureau of Mines. The Bureau is engaged in several investigations for beneficiating domestic ores. Completion and rehabilitation of the Laramie, Wyoming, experimental alumina plant is in progress. Its operation will demonstrate the technological and economic feasibility of producing alumina from low-grade materials such as anorthosite and clay by the lime-sinter process. In co-operation with the Apex Smelting Co. tests are being carried out on direct electro-thermic reduction of clays for the production of aluminium-silicon alloys. Experimental work on the beneficiation of high silica bauxites by selective leaching methods has resulted in a better understanding of the problems inherent in this method of up-grading "sub-metal grades."

Domestic mine and smelter production of antimony increased substantially in 1951, and although consumption also increased, domestic ore and concentrates were removed from price control in December. Negotiations with producers were in progress to increase domestic supplies.

The Bureau of Mines has made energetic efforts to expand domestic mine output of beryllium and the concentration of low-grade ores, favourable results being reported from ore dressing, metallurgical and field research.

A D.M.P.A. purchase programme, which may provide 125,000 tons annually of chemical and metallurgical chromite ore and concentrates, together with some refractory chromite, has been worked out, and some contracts are under negotiation. Expansion of the programme to 200,000 tons might be achieved by increasing production from the Montana deposits.

Production of cobalt metal will be substantially increased when the refinery of Calera Mining Co. near Salt Lake City, Utah, is completed about April this year. The annual output will be 3,300,000 lb. In June, 1951, a contract was concluded with National Lead Co. to erect a cobalt-nickel-copper separation plant at Fredericktown, Missouri. It is expected to be in operation about mid-1953 and will produce cobalt, nickel and copper at annual rates of 1,386,000, 1,852,000 and 1,418,000 lb. respectively.

The Bureau of Mines started comprehensive studies in a major effort to increase the domestic mine output of columbite-tantalite and locate new deposits. The Geological Survey is starting a programme of investigation of all types of deposits that may contain columbium and tantalum in significant quantities. It has already found that the Arkansas bauxite deposits probably contain about 1 lb. of columbium per ton of bauxite.

As a result of the activities of the Bureau of Mines and the Geological Survey, several large copper properties in the United States will be brought into production, from which about 160,000 tons is scheduled for production through 1955.

To assist in reducing the severe shortage of acid-grade fluorspar that developed in the last half of 1950, contracts were negotiated with private firms for the exploration of fluorspar deposits. A contract was also concluded for the construction of a flotation mill in Colorado, and other expansion projects were under negotiation.

During the past six months 83 lead-zinc-cadmium projects were recommended for exploration assistance totalling over \$4,000,000. Among projects considered by D.M.P.A. was that of the North Butte Mining Co. of Helena, Montana, to recover lead and zinc from copper leach liquors. The Boulder City laboratory is continuing research on methods of treating oxidized zinc-lead ores which are not amenable to present treatment methods. Efforts are centred on caustic leaching, followed by electrolytic deposition. Brown & Root, Inc., of Houston, Texas, are planning the mining and milling of large reserves of zinc ore in south-western Missouri. Substantial production of zinc and lead from Pend Oreille County, Washington, is now being made on ore bodies that were studied and drilled during the war. Production of zinc and lead in the Wisconsin district is expected to increase due to the entrance of several large companies into the district.

Magnesium base alloys containing lithium and aluminium have shown excellent fabricating characteristics and for a short time after heat treatment, an unusually high strength-to-weight ratio. The Bureau of Mines is making a detailed study of phases present in this ternary system and the transformations that occur with various heat treatment and ageing cycles. A better understanding of low-temperature phase transitions may lead to more effective utilization of this alloy.

The U.S. Government was in negotiation with various private concerns in regard to the beneficiation of low-grade domestic reserves of manganese to acceptable metallurgical concentrates. Such contracts could result in an ultimate production of 150,000 gross tons annually. Two D.M.P.A. exploration projects in the Batesville, Arkansas, district have shown large tonnages of sub-marginal manganese ore, and negotiations are under way for large-scale mining and milling operations.

Contracts for stimulating the domestic production of molybdenum were signed. Proposals for working the low-grade fringe area of the Climax deposit at Colorado and for opening the Urad mine are under consideration. The expansion of copper production has led to an increased production of 150,000 gross tons annually. Two D.M.P.A. Survey investigated the possibility of increasing molybdenum production from the porphyry copper deposits in the south-west, which present important long-range possibilities for substantial increases in the molybdenum supply. Expansion programmes were also under way at the plants of several domestic producers and processors of tungsten. A programme covering the purchase of domestic tungsten concentrates over a five-year period at \$63 per s.ton unit was announced. Facilities for processing additional ore and low-grade concentrates were installed at the Bishop, California, plant of United States Vanadium Corporation. Active exploration of tungsten and tin-tungsten deposits has been in progress.

TITANIUM METAL PRODUCTION

Titanium metal was produced commercially at the end of 1951 at the rate of four tons per day, using a process developed by the Bureau of Mines. Research was continued by the Bureau on the design and operation of a continuous reactor. Development of a continuous process could lead to a substantial decrease in the price of titanium, thereby extending its uses. At its present price the use of the metal is limited to such items as jet engine parts, aircraft structures and ordnance components, in which the combination of lightness, strength and corrosion resistance is sufficiently important to justify the high cost.

Ore reserves in the Laramie Range, Wyoming, are estimated at 3,600,000 tons, carrying between 16 and 23 per cent TiO_2 , and over 5,000,000 tons of lower grade.

The Preparation and Dressing of Non-Ferrous Ores in the U.S.A.

By F. BICE MICHELL

The following is the first part of a lecture to the Cornish Institute of Engineers delivered on February 21, 1952, in which the author, who is the Head of the Department of Mineral Dressing at the Camborne School of Mines, describes a few outstanding plants and interesting practices observed while he was in the United States last spring as leader of an O.E.E.C. Mission. The aim of the mission was to study techniques and machinery used in the U.S.A. for the preparation and dressing of non-ferrous and non-metallic ores. On this mission the author represented the interests of the Malayan Chamber of Mines.

On arrival in the U.S., we started work with a meeting in New York, followed by visits to plants in that area during the next three days. Conferences were also held with representatives of a number of manufacturers and visits made to Columbia University, the American Cyanamid Co. and the Dorr Company, Connecticut.

At the Dorr Company's research establishment at West Port, the Dorr-Sizer was examined (not unlike the Stokes hydrosizer) at work, also the new hydrosclatter and the D.S.M. cyclone being used as a deslimmer and thickener. Apart from the usual laboratory equipment of general interest, the experimental fluo-solid roasters were inspected. This new type of roaster might well be examined for arsenic recovery in Cornwall.

U.S. BUREAU OF MINES

After a week-end in Washington, we had conferences with the U.S. Bureau of Mines and visited the Eastern Experiment Station at College Park, Maryland, where a very comprehensive test plant is available as well as geological, chemical and other laboratories. The most interesting feature was probably the work being done by Foster Frass on electrostatic separation (see *RI 4766* and others). Another small point was the use made of a simple spectrograph for quick identification of minerals.

At this point, I do not think that it will be out of place to call attention to the wonderful work which is done by the U.S. Bureau of Mines both with regard to exploration and on the extractive side when a process has to be developed for an ore or a by-product utilized. It is to me most regrettable that nothing is done in this country to foster metal mining in a similar manner even if it be, as we know it must, on a very greatly reduced scale. Not only does the U.S. Bureau of Mines carry out investigations of a very varied nature for the benefit of the mining community as a whole, but a great deal of research, both fundamental and applied, is continuously being undertaken by Universities and Technical Colleges, frequently in close collaboration with the Bureau and financed by the Government. Furthermore, most of the Bureau of Mines stations are situated in or near the University so that close liaison is now possible.

To me, it is sad to see how far behind we have fallen, because in our case, it is not the small home mining industry alone which suffers but also that in our Colonies, and I do not think this fact is appreciated by the country.

The Camborne School of Mines turns out no less than 25 to 30 young technologists per annum (which is more than almost any other purely metalliferous Mining School in the world) who help to win and indeed very largely win for the British Empire its mineral wealth (and incidentally some much needed dollars) and I do not think that the value of this "invisible" export is realized. It is very well equipped, considering the funds available, but if it had a fraction of the attention given to similar

institutions in the U.S., no place in the world could compare with the facilities that could be offered. With the equipment it now possesses, a great deal of useful industrial research could be undertaken, if research fellows and funds were available to do it, which could be of inestimable value to the mining industries.

AMERICAN ZINC COMPANY

After leaving Washington, we proceeded to Knoxville, Tennessee, where the American Zinc Co.'s plant at Mascot was seen. Here, a heavy media plant was inspected, together with flotation and jigging equipment to recover zinc. There is really nothing outstanding at this plant, but it is interesting as the birth-place of H.M.S. Process. One small item of interest here was the car "shakeout," consisting of a frame, carrying an unbalanced shaft, which could be dropped over the railway car in order to facilitate discharge through the hopper bottoms of the cars.

TENNESSEE COPPER COMPANY

Originally, copper was the major product, but now, owing to the increase in the pyrrhotite contents, this mineral is recovered for its sulphur content. The process consists, briefly, of bulk flotation of the sulphide minerals, followed by depression of the pyrrhotite with lime, resulting in the recovery of a copper product for smelting. After much experimenting, the copper content of the pyrrhotite has been dropped sufficiently low that the roasted residues can be used for steel-making.

Some zinc is also present, and this is recovered from the tailing by flotation after activation with copper sulphate, whilst the final tailing, containing a little magnetite, passes through wet magnetic separators and this product goes to the iron smelters.

I think you will agree that this is an example of careful research and painstaking application to get the utmost out of an ore of marginal value. This kind of thing could be done in Cornwall, but it needs not only expensive research and a large technical staff, but above all, the will to try out something new. The most interesting development at this mine is the new grinding circuit involving a rod mill to reduce to about 14 mesh, followed by the giant Tricone mill, which is being operated at a low speed and employing small diameter balls, whilst the hydrosclatter classifier is used in the circuit.

A further point of interest here is the application of rubber lining in chute and on the wheels of skips using Linatex. Strangely enough, Linatex, although well-known in this country, has not been publicized in the States and has only recently been "discovered."

CHINA CLAY MINES

The next visit was over the Smokey Mountains to Spruce Pine, N. Carolina, where the china clay mines were seen. At the present time, dry mining is practised, using

benches and shovels on sleeper roads. The crude clay is dumped into a hopper and carried by conveyor belt to the head of the plant where disintegration takes place. Very few large stones are present and the material is probably much easier to break-up than the Cornish clay.

Indeed, a grizzly cleaned by hand removes the occasional stone, whilst "blunging," as it is termed, is carried out in one plant using an elaborate set of knives, trommels and bucket wheels, copied, I believe, from Europe, and simply by tumbling in a Hardinge mill at another property.

The crude clay contains 10-18 per cent kaolin, 5-12 per cent mica, and is a decomposed Alaskite. No tourmaline is present and the size of the mica is large, compared with the Cornish and does not appear to be as blocky. After disintegration, the clay is screened and run through a classifier and Dorr thickeners to make a sand separation. The mica is recovered from the sand by flotation, supplemented by Deister-Overstrom tables, but the latter appear to do very little.

A NOVEL FEATURE

Mica flotation takes place at a density of 12-13 Bé., using Armac T. along with paraffin and gas oil as collectors for the coarse mica. The use of acid and aluminium sulphate as a granular silicate depressor has been abandoned. One novel feature was that fine mica is now recovered by flotation using sodium resinate, with lime to maintain a pH of 9.0 and the results are said to be better than those obtained with a cationic reagent. The large flakes or blocky mica fails to float in this circuit, however.

In the clay separation, water glass amounting to about 1 per cent of the weight of the finished clay is added bringing the pH to 7.0-7.5. Before settling, aluminium sulphate is added to drop the pH to 4.0 or 5.0. Filtration is carried out in one-ton presses being fed by tanks under compressed air at 120 lb. per sq. in. The filter cake carries 30-40 per cent moisture and is removed by hand and dried on racks in a tunnel drier to 2-5 per cent.

FELSPAR RECOVERY

In the same district, two felspar plants were visited which treated the Alaskite containing approximately 50 per cent felspar. One handled 500 tons of feed per day and the other 300 to 350 tons per day. In both plants the procedure was the same, and consisted of grinding in rod mills operating in closed circuit with 20 mesh stainless steel trommels followed by flotation. The use of trommels was interesting as they were said to last longer.

After desliming at about 300 mesh, the mica was removed by flotation, then after washing, a felspar concentrate was made, which was cleaned, washed and filtered.

In the second plant visited mica and iron minerals were removed in two separate operations before the final felspar concentration, using the standard method of hydrofluoric acid to depress quartz and flotation with an amine salt.

After washing to remove the acid and spraying with sodium hydroxide, the felspar was filtered and dried and sent to the glass trade.

For high-grade ceramic spar, magnetic separation was used to remove the residual iron, largely as garnets (this reduced the iron content from about 0.1 per cent Fe_2O_3 to 0.03-0.04 per cent). Actually, there is about $\frac{1}{2}$ per cent Fe_2O_3 in the mill feed.

After leaving Spruce Pine, we visited the Ashville research station, where much of the felspar recovery was worked out and then flew to Tampa, Florida.

Technical Briefs

New Analytical Standard for Chrome Ore

An industry standard sample for metallurgical chrome ore is stated to have recently been established through a co-operative study by several metallurgical, commercial and chemical laboratories experienced in chrome ore analysis in the United States, Canada, and the Union of South Africa.

The careful analysis of the ore, containing 50.96 per cent Cr_2O_3 , for chromic oxide, iron, silica, alumina, and magnesia has filled a long-expressed need of the industry for a reference standard having a chromic oxide content higher than that of the chrome refractory containing 36.97 per cent Cr_2O_3 now obtainable from the U.S. National Bureau of Standards. Portions of the sample and copies of the analysis certificate are available without charge to industrial and commercial laboratories directly concerned with chrome ore analysis, upon application to Merton H. Davey, Andrew S. McCreath & Son, Harrisburg, Pa.

The sample was prepared by thorough mixing of a finely ground sample of Turkish chrome ore by Andrew S. McCreath & Son, Harrisburg, Pa., and after preliminary tests for chromic oxide and iron on several portions of the sample by two laboratories had established its uniformity, samples were distributed to the co-operating laboratories for analysis. The analyses were correlated and the analysis certificate prepared by the Research Laboratories of the Mutual Chemical Company of America, Baltimore, Maryland.

The laboratories participating in the analyses were: Booth, Garrett and Blair, Philadelphia, Pa.; Canadian Refractories, Ltd., Montreal, P.Q., Canada; E. J. Lavino and Co., Norristown, Pa.; Ledoux and Co., New York, N.Y.; Andrew S. McCreath and Son, Harrisburg, Pa.; Mutual Chemical Co. of America, Baltimore, Md.; Ohio Ferro-Alloys Co., Philo, O., and Tacoma, Wash.; Standard Bank of South Africa, Johannesburg, Union of South Africa; Union Carbide and Carbon Research Laboratories, Niagara Falls, N.Y., and the Vanadium Corporation of America, Niagara Falls, N.Y.

Details of the preparation of the sample, and a general review of current analytical procedures and results on chrome ore, are contained in a paper which has been prepared for publication by Winslow H. Hartford, Research Supervisor, Mutual Chemical Co. of America.

U.S. Titanium for Jet Engines

The Cyril Bath Machinery Co., Ohio, has recently announced that titanium has been shaped successfully for faster jet engines. A spokesman of the company said that rings or circles of complex cross-sections were completed accurately on the new "rotary draw former." Titanium could withstand temperatures up to 3,510° F., was lighter than steel and could bear a stretch or tensile pull up to 140,000 lb. a sq. in., and it had been described as the "replacement metal" for all steel parts in plane construction once the cost of refining was reduced. At present, the metal sold for \$25 a lb. and had been used only in experimental stages. The Bath Co. conducted its experiments in conjunction with the planning department of the gas turbine aircraft division of the General Electric Corporation.

In explaining the effect of its new method upon the saving of scrap, the company's spokesman said that new metals like titanium could not be shaped by conventional metal-working methods without prohibitive cost and waste. Mr. Cyril Bath, president, said that the "rotary draw former" in shaping titanium rings alone would mean a saving of more than \$8,000 a ring, compared with older methods still used for stainless steel. The rotary draw former replaced other boring and milling devices which carved shapes out of solid metal. One titanium ring shaped on the Bath device weighed 5 lb. and was made from $\frac{5}{8}$ lb. of metal worth about \$135. Conventional carving of the metal would require 350 lb. of titanium costing \$8,750.

Mr. Bath said it was too early to predict what would happen when titanium was subjected to "the blow torch which is the combustion part of a jet engine." But the company's experiment was completed to the satisfaction of requirements set up by the two companies. He added that the rotary draw former had so far moulded every steel, aluminium or other alloy subjected to it in numerous tests by jet plane builders.

METALS, MINERALS AND ALLOYS

Mr. Charles Wilson's resignation as Director of Defence Mobilization confirms the impression that President Truman does not intend to allow the steel industry a sufficient price increase to compensate for the Wage Stabilisation Board's recommended wage increase of around 30c. an hour.

The prospects for averting a nation-wide steel strike on April 8 now seem very poor. The Administration is reported to be studying the legal aspects of a Government take-over of the industry in the event of a strike, but it is difficult to see how this would result in any production of steel if the Unions are determined to strike.

COPPER.—Part of last September's reduction of £7 per ton in the price of electrolytic copper has been cancelled by the announcement this week of an increase of £4 per ton. This brings the price up to £231 per ton equivalent to 28.85c. per lb. The Ministry of Materials states that the higher price has been caused by the extent of the overhead charges which the Ministry has to bear.

An official statement on the meeting between the representatives of the Chilean Government, delegates from Kennecott and Anaconda, and officials from D.P.A. has been issued. The problem of supplies from Chile has been handed over to the General Services Administration, as the U.S. Government's buyer of foreign and domestic metals. Negotiations are believed to be in progress this week but no official information is to be published until an agreement has been reached. The U.S. is not in the same happy position as it was with tin, when it could divide the produce.

Additional supplies of copper are needed by the U.S. and it seems as if the Administration may be compelled to go at any rate part of the way towards meeting the Chilean's request for an overall price of 33½c. Meanwhile the threat of a strike at present postponed until April 25 at two of Anaconda's big properties in Chile (the Porterillos and Chuquicamata mines) will strengthen the Chilean Government's hands as the Union's are demanding higher wages and benefits.

The I.M.C. allocation of copper remains on a quarterly basis, but the amount allocated for the second quarter is less than in the first quarter, because the amount of copper available in the first quarter had been over-estimated. Supplies of copper in the second quarter are bigger than in the first quarter. Of the total of 723,680 tonnes available in the April-June period, 355,600 tonnes goes to the U.S., 97,200 tonnes is destined for the U.K.

LEAD.—The slide in the Mexican price of lead continues gently. The price at the end of last week was 18.13c. per lb. f.o.b. Monterey compared with 18.16c. a week earlier. In New York spot lead was being quoted this week at 18.50-18.75c. f.a.s. Gulf Ports.

The I.M.C. has decided formally, as expected, not to recommend any distribution plan for lead.

Shipments of refined lead to domestic consumers in the U.S. during February increased to 41,291 tons from 40,390 tons. At this level they were at the highest since last July. Total shipments during the first two months of the year at 81,681 were, however, well down on the 100,388 tons of the corresponding period of 1951.

TIN.—Presumably as the result of the shorter month, tin production in Malaya was lower in February than in January. The metal content of the concentrates produced was 4,425 tons in February against 4,743 tons in January and 4,989 in December. Thailand's output of tin ore dropped from 1,055 tons in December to 900 tons in January.

All the February Indonesian output of tin ore went to Holland. This exclusion of the U.S. from shipments will cease now that the Indonesians and the U.S. have signed the tin agreement. Shipments of Indonesian tin ore totalled 2,344 tons in January and 1,936 tons in February. The total of 4,280 tons for the first two months of the year is well down on last year's figure of 5,046 tons for the same period.

ZINC.—Zinc allocation by I.M.C. for the second quarter of the year are about 5 per cent bigger than those of the first quarter. The total amount of slab zinc allocated is 510,145

tonnes against 487,650 tonnes. The U.S. takes 235,800 tonnes, the U.K. 67,000 tonnes and West Germany 42,000 tonnes. Belgium-Luxembourg is given a quota of 26,500 tonnes.

A vice-president of Anaconda Copper Mining has predicted the zinc production from Butte will be more than doubled in the next five years. Reserves have been disclosed which would enable 3,000 tons of ore per day to be passed through the Badger mine shaft alone.

According to the Bureau of Mines, the domestic consumption of zinc in the U.S. decreased by about 8 per cent during 1951 to 887,009 tons. Brass and bronze manufacturers, however, stepped up output by little more than one per cent.

ALUMINIUM.—Higher costs are blamed for the increase of £6 per ton in the price of virgin aluminium announced this week by the Ministry of Materials. The price of aluminium of 99 per cent to 99.5 per cent purity will be £154 per ton delivered consumers' works, the higher purity premiums remaining unchanged. This is the first price increase since the beginning of January when the Ministry added £24 per ton. The Minister of Supply has raised the maximum prices for aluminium scrap to take account of the new prices for the virgin metal.

COBALT.—The distribution plan for cobalt during the first half of 1952 has been agreed by nine out of the eleven members of the sub-committee. Western Germany dissented and India had not replied. The tonnages allocated under the new agreement include, of course, the amounts contained in the plan governing the first quarter of the year. The total amount of cobalt disposable was 77,082,075 lb., of which 52,306,781 lb. went to the U.S., 11,741,038 lb. to the U.K., 3,802,935 to France and 2,744,286 lb. to Germany.

MOLYBDENUM.—The total amount of molybdenum metal to be distributed by I.M.C. in the first half of 1952 is 9,605 tonnes with a further 411 tonnes for distribution as primary products. By far the greatest amount of the metal in ore and concentrates, 7,342 tonnes, is reserved for the U.S. The U.K. takes 1,067 tonnes; France follows with 456 tonnes and Germany with 369 tonnes. Canada is to obtain 168 tonnes of the primary products to be distributed. As in the instance of tungsten referred to below, a monthly review is to be made.

NICKEL.—I.M.C. has allocated nickel again on a quarterly basis. The total quota for the second quarter of the year is 34,964 tonnes, as compared with 33,583 tonnes in the first quarter, the extra quantity coming from the Nicaro plant in Cuba and from French New Caledonia. By far the largest proportion of this total is allocated to the U.S., the actual number of tonnes is 23,726. The U.K.'s share is 5,325 tonnes, with France having 1,725 tonnes.

WOLFRAM.—The Ministry of Materials' policy of keeping the domestic price of tungsten in line with the price of imported supplies has resulted in a reduction in the price of standard 65 per cent grade and ordinary quality from 535s. to 500s. per ton unit, delivered consumers' works.

On the initiative of the Ministry of Materials a new company, British Tungsten, has been formed by Metal Traders, Derby & Co. and H. A. Watson & Co. The purpose of the new company is to facilitate arrangements for the purchase, supply and distribution of wolfram. At present the three concerns sponsoring the new company handle the Ministry's business, but British Tungsten will in due course become the Ministry's sole agent.

The I.M.C. has changed the basis of allocating tungsten supplies: the period covered is to be six months and allocations relate to ores, concentrates and primary products. The quotas recently announced include the quotas made earlier for the first quarter of the year. An interesting innovation is the tungsten, referred to below, a monthly review is to be made, to correct any maladjustments. The total amount of metal in ore and concentrates distributed was 7,652 tonnes and as primary products, 547.8 tonnes. Little more than one-half of the metal in ore, 3,880 tonnes, is to go to the U.S. and slightly less than one-quarter, 1,629 tonnes will come to the U.K. Spain has objected to the allocations and "reserves its position" in the matter.

The London Metal Market

(From Our Metal Exchange Correspondent)

The tin market has been absolutely featureless and no further news has yet come to hand about the progress of the negotiations between the R.F.C. and the Bolivians. Elsewhere demand has continued to be very spasmodic, and unless general trade picks up, it is thought that the price is unlikely to alter appreciably during the next few weeks.

The U.K. Government have raised their selling price for electrolytic copper by £4 per ton, whilst they have reduced the price of secondary unwrought copper, other than electro and fire refined, by £15 per ton. These changes are adjustments made necessary by increased charges all round and have no effect on the prices paid to the mining companies. On the Continent electrolytic copper has changed hands at £350 per ton, whilst the dollar quotation stands between 41c. and 38c. per lb., depending on the time of delivery. The zinc market is featureless, although a little more demand has been reported recently and the price is probably several pounds above the low level of £160 per ton touched in recent weeks. There is no interest in the metal with payment in dollars.

The lead price is difficult to gauge as there have been offers as low as £135 per ton, f.o.b. Europe, but only for limited quantities.

On Thursday the official close on the tin market was: Settlement price £962, Cash Buyers £962, Sellers £962 10s. Three months' Buyers £965 10s., Sellers £966. In the afternoon the market was slightly firmer. Turnover for the day was 45 tons. Approximate turnover for the week was 455 tons.

The Eastern price on Thursday morning was equivalent to £971 15s. per ton, c.i.f. Europe.

Iron and Steel

At the beginning of the second control period, the outlook for steel remains precarious. The most menacing factor is the threat of the United Steel Workers Union to launch a strike in the U.S.A. on Tuesday next. If this disaster can be avoided there is promise that American shipments of steel to this country will be accelerated. It is indicated that as much as 300,000 tons may be delivered within the next three months. On the other hand a stoppage of the American steel plants would immediately involve an intensification of the restrictions upon the use of steel in this country.

The British authorities are pursuing a cautious policy. Allocations for the second quarter have not been increased, except in a few special cases, but if the position develops favourably, it will be possible to issue supplementary authorizations.

In the steel trade, the import restrictions imposed by Canada, Australia, New Zealand and South Africa are not unmitigated evils. A reduction in direct steel imports to the Dominions promises bigger tonnages for the home market. But, of course, the primary objective is the rapid expansion of ingot output to meet the urgent requirements of both home and foreign markets.

Hitherto there have been three limiting factors—the dearth of scrap, coke, and ore. Happily, ore supplies are now abundant. In the first two months of this year, ore imports increased by over a 250,000 tons, and the output of home ore has also been substantially increased.

The scrap problem has proved more intractable. Deliveries are hopelessly inadequate and imports continue to shrink. The one hopeful factor is that American consumers are expected to abstain from taking up their quotas of German scrap, which presumably would be diverted to this country.

Finally, it is learnt that the National Coal Board has promised increased supplies of coking coal as new coke oven capacity becomes available for operation.

On the whole, blast furnacemen are hopeful that they will be able to maintain the rising trend of pig iron production, but there is still a very wide gap between supply and demand—so wide in fact that exports are banned and we are still importing pig iron from overseas.

APRIL 3 PRICES

COPPER

Electrolytic £231 0 0 d/d

TIN

(See our London Metal Exchange report for Thursday's prices)

LEAD

Soft foreign, duty paid £163 0 0 d/d
Soft empire, including secondary lead £163 0 0 d/d
English lead £164 10 0 d/d

ZINC

G.O.B. spelter, foreign, duty paid £190 0 0 d/d
G.O.B. spelter, domestic £190 0 0 d/d
Electrolytic and refined zinc £194 0 0 d/d

ANTIMONY

English (99%) delivered,
10 cwt. and over £340 per ton
Crude (70%) £275 per ton
Ore (60% basis) 40s./42s. 6d. nom. per unit, c.i.f.

NICKEL

99.5% (home trade) £454 per ton

OTHER METALS

Aluminium, £154 per ton. Palladium, £8 10s. oz.
Bismuth, 25s. lb. Platinum (scrap), £33.
Cadmium, 18s. 9d. lb. Rhodium, £45 oz.
Chromium, 6s. 3d. lb. Ruthenium, £30 oz.
Cobalt, 20s. lb. Quicksilver, £73 10s./£74
Gold, 248s. f.oz. ex-warehouse.
Iridium, £65 oz. nom. Selenium, 25s. nom. per lb.
Magnesium, 2s. 10d. lb. Silver (bar), 77d. f.oz. spot
Osmiridium, £35 oz. nom. and forward.
Osmium, £70 oz. nom. Tellurium, 19s. lb.

ORES, ALLOYS, ETC.

Bismuth 50% 16s. lb. c.i.f.
40% 14s. 9d. lb. c.i.f.
Chrome Ore—
Rhodesian Metallurgical (lumpy) £13 per ton c.i.f.
" (concentrates) £13 per ton c.i.f.
" Refractory £12 12s. per ton c.i.f.
Baluchistan Metallurgical £14 16s. per ton c.i.f.
Magnesite, ground calcined £26 - £27 d/d
Magnesite, Raw £10 - £11 d/d
Molybdenite (35% basis) £103s. 1d. per unit c.i.f.
Wolfram (65%), U.K. 485s. nom. c.i.f.
Tungsten Metal Powder 35s. nom. per lb. (home)
(for steel manufacture)
Ferro-tungsten 33s. nom. per lb. (home)
Carbide, 4-cwt. lots £30 3s. 9d. d/d per ton
Ferro-manganese, home £43 15s. 2d. per ton
Brass Wire 2s. 8d. per lb. basis.
Brass Tubes, solid drawn 2s. 1d. per lb. basis.

U.K. METAL & MINERAL IMPORTS—FEB.

	Units	Feb. 1952	Jan.-Feb. 1951	Jan.-Feb. 1952	Increase or decrease in 1952 over 1951
Non-ferrous metals and manufactures:					
Aluminium and alloys...	Cwt.	322,927	269,045	580,693	+ 311,648
Bismuth	Lb.	25,604	64,146	59,133	- 5,013
Cadmium	Lb.	156,173	213,104	280,336	+ 67,232
Cobalt and alloys	Lb.	55,115	626,193	463,622	- 162,571
Copper:					
Electrolytic	Tons	15,163	34,486	34,089	- 397
Other	Tons	13,534	20,527	21,933	+ 1,406
Lead	Tons	22,303	17,377	48,026	+ 30,649
Mercury	Lb.	61,873	193,812	107,495	- 86,317
Nickel	Cwt.	5,887	16,182	24,003	+ 7,821
Tin	Tons	747	763	1,445	+ 682
Zinc	Tons	14,870	16,180	33,178	+ 16,998
Ores and concentrates:					
Antimony ore and conc.	Tons	2,694	5,194	3,598	- 1,596
Bauxite	Tons	18,810	66,417	53,995	- 12,422
Chromium ore	Tons	10,115	15,749	30,232	+ 14,483
Iron pyrites	Tons	26,842	32,087	39,879	+ 7,792
Manganese ore	Tons	41,664	82,949	82,251	- 698
Molybdenum ore	Tons	5,069	12,780	10,252	- 2,528
Nickel ore, conc. & matte	Tons	2,658	6,415	3,592	- 2,823
Tin ore and conc.	Tons	2,991	6,205	7,693	+ 1,488
Titanium:					
Ilmenite	Tons	8,458	26,087	14,209	- 11,878
Other sorts	Tons	1,449	791	2,238	+ 1,447
Tungsten ore	Tons	106	646	304	- 342
Zinc ore and conc.	Tons	10,530	12,293	31,880	+ 19,229
Non-metalliferous mining products:					
Asbestos	Tons	7,983	14,137	15,694	+ 1,557
Magnessite	Tons	2,495	3,388	5,371	+ 1,983
Sulphur	Tons	26,761	58,892	83,779	+ 24,887

*Excluding bismuth alloys.

†Including cupreous iron pyrites.

COMPANY NEWS AND VIEWS

Spaarwater's Western Section Developments

Although, once again, there was an excess of revenue over mining and milling costs, Spaarwater Gold Mining wound up the year 1951 with another working loss. The mill throughput was 700 tons more at 124,800 tons, yield being 4,523 dwt. against 4,880 dwt., and revenue from the 28,226 oz. of gold produced was £368,341, which included £17,298 from premium sales. Mining and milling costs accounted for £252,160, leaving a credit figure of £116,181. After taking into account development costs, £124,948, the working loss came out at £8,767 compared with £10,848 the previous year. This, with other small debits and £7 in respect of taxation, brought the accumulated loss at December 31, 1951, to £131,043.

The fall in the yield per ton was accompanied by an increase in costs but expenditure on development was lower. The footage accomplished was 15,009 ft. against 20,898 ft., and of the 11,470 ft. sampled, 31.5 per cent proved payable of an average of 7.1 dwt. over a width of 36.3 in.

The hope that the mine's proximity to the Sub Nigel would lead to the rich shoots of that property being found has not materialized. The company's technical advisers, the Consolidated Gold Fields, however, give information with regard to the payshoot in the 37 West Haulage put out across the property towards the western section. The footage on the reef was 1,823 ft., of which 335 ft. or 18.4 per cent proved payable averaging 12.9 dwt. over 36 in. Subsidiary development is being carried out in order to explore the potentialities of this payable zone. Meantime ore reserves are lower at 175,000 tons of 5.6 dwt.—24,000 tons less than a year ago.

Vaal Reefs to Start Development

The first steps towards opening up and developing the Vaal Reefs Exploration are announced in the company's 1951 annual report. They will involve the sinking of a second vertical and sub-vertical shaft some 8,000 ft. east of the present one (No. 3 Vertical), which has been sunk jointly with Western Reefs. It was in December last that the reef was intersected in this shaft at 2,095 ft. below underground hoist chamber level or 5,882 ft. below surface and fully exposed over the total perimeter, sampling yielded 75.62 dwt. over 6.16 in.

In his statement accompanying the report, the chairman mentions that development will start shortly and arrangements be made to bring the property to production. The technique necessary for underground work to proceed has been planned out and it is estimated that an amount of £750,000 above the present cash resources will be required in the current year and in 1953. This is to be borrowed from Anglo American Corporation, the controlling house. Meantime permanent hoists at No. 3 Vertical are being installed and the final depth of the shaft should be reached by the middle of the current year when, it is anticipated, the hoisting of rock will commence. Development will proceed with the object of obtaining as much reef information as possible. The consulting engineers have pointed out that if a haulage is driven from the main station of the No. 3 vertical shaft to the vicinity of the site in which the new No. 1 shaft system will be located, it will be possible to complete the excavations necessary for sinking of the sub-vertical shaft in order to sink the vertical and sub-vertical shafts simultaneously. In this way sinking need not commence until 1954.

Vaal Reefs spent £217,761 on shaft sinking and equipment last year. General capital expenditure figures at £29,586. There is an Anglo American loan of £370,542. Cash stands at £20,130.

"Offsets" Negotiate Loan from Swiss Bank

The Orange Free State Investment Trust has announced that it has negotiated a loan of 25,000,000 Swiss Francs—currently equivalent to approximately £2,041,000 in South African currency—from the Union Bank of Switzerland. The loan will bear interest at the rate of 4½ per cent and will be repayable at par on June 30, 1966, or between 1961 and 1965 at the

company's option at premiums ranging from 2½ per cent down to one-half per cent.

As evidence of the loan, the company will issue 25,000 Registered Bonds of 1,000 Swiss francs each (£81 12s. 7d. S.A. currency) which will entitle holders to subscribe for shares in the company at a price of £3 per share.

This agreement is provisional and an extraordinary meeting of shareholders will be held on April 21 to increase the company's capital from £5,000,000 to £7,000,000 as it will be necessary to provide the shares required to satisfy the rights of the Registered Bond and Option Holders. At the same meeting shareholders will also be asked to authorize the directors to issue the 4,000,000 new shares so created in such a manner as they may deem advisable.

Company Shorts

Lyndhurst Deep Pays 10 Per Cent More.—For the calendar year 1951 the directors of Lyndhurst Deep-Level (Gold and Silver) have recommended a dividend of 15 per cent against 5 per cent paid in the previous year.

After providing £65,345 (£38,797) for development redemption, £3,179 (£3,292) for depreciation, £12,865 (£12,053) for income tax and transferring £18,959 to bullion reserve, the profit for the year amounted to £52,132 compared with £21,624, which included a credit of £3,862 for gold duty, in 1950. The proposed dividend, which will be paid on May 16, will absorb a net amount of £34,650 (£11,550) leaving £31,189 (£13,707) to be carried forward.

The preliminary statement also announces that the increased profit resulted from the treatment of ore taken from the existing ore reserves as development results during the year were disappointing, the only payable driving being in the known ore body.

The ore reserves as at December 31, 1950, amounted to 61,715 tons averaging 14.7 dwt. per ton over 57 in.

Anglo American Maintains Dividend at 60 Per Cent.—Anglo American Corporation of South Africa has announced a final dividend of 4s. per 10s. ordinary share, making a total of 6s. per share or 60 per cent for the year 1951.

The profit for the year after providing for taxation was £2,894,000 against £2,340,000 in 1950. The sum of £850,000 was allocated to the general reserve which now stands at £13,500,000. In 1950, £3,050,000, which represented share premium less expenses of new issues, was placed to general reserve.

The dividend is declared in the currency of South Africa and becomes due on April 16. Warrants will be posted from the head and London offices on or about May 19. The effective rate of non-resident shareholders' tax is 6.075 per cent.

De Beers Pay 200 Per Cent.—De Beers Consolidated Mines have recommended the payment of a final dividend of 7s. per 5s. Deferred share, or 140 per cent, making a total of 200 per cent for 1951 compared with a total of 110 per cent for 1950.

Net profit for the year of £10,338,555 was struck after providing £2,600,000 for taxation at the increased rates announced by Mr. Havenga in his recent Budget speech. The net profit figure shows an increase of £2,457,871 over the 1950 figure, which was struck after providing £2,500,000 for taxation.

Yukon Consolidated: Net Profit \$C.353,100.—Provisional figures for 1951 (subject to audit) announced by Yukon Consolidated Gold Corporation, which is incorporated in Canada, revealed that net profit for the year, after providing for all charges including \$C.250,000 for depreciation and amortization (no income tax was payable), amounted to \$C.353,100 compared with \$C.829,695 in 1950.

In last week's issue the net profit figure for 1951 was erroneously stated to be \$C.603,100.

U.K.-Burma Tax Pact Ratified.—The agreement between Britain and Burma to prevent double taxation and tax evasion came into effect on March 27 last.

St. Helena Gold Mines.—Approximately 96 per cent of the 1,875,000 shares, St. Helena Gold Mines recently offered to shareholders at a price of 16s. per share was taken up.

New Consols Sponsors Cornish Wolfram Company.—The Wolfram Prospecting Syndicate Ltd., in which New Consols is interested, has been formed to prospect for and develop wolfram deposits in east Cornwall. Operations are being undertaken at Trebartha and Luckett.

Mr. E. C. Baring has been appointed a director of Mufulira Copper Mines.

Mr. A. V. Conrad has been appointed alternate director of Selection Trust to Mr. E. Fraenkel in succession to the late Mr. S. T. Amner, and **Mr. E. C. Wharton Tigar** has been appointed alternate director to Mr. T. H. Bradford.

Mr. Robert W. Foot has retired from the board of the Australia and New Zealand Bank in consequence of his taking up residence in Southern Rhodesia as chairman of Wankie Colliery.

Mr. Christopher Bartle Hugh Scott has been admitted into partnership with Mocatta & Goldsmid.

Mr. E. D. Shearn has joined the boards of Malayan Tin Dredging and Southern Malayan Tin Dredging.

The Institution of Mining and Metallurgy have announced that the paper to be submitted for discussion at the general meeting to be held on April 17, will be "A review of the ventilation of some deep mines (Witwatersrand gold fields)," by Mr. M. Barcza, who expects to be present.

Tropical Hygiene Course for Mine Managers.—The Ross Institute will hold its Annual Course on tropical diseases, nutrition, housing and sanitation, protection against heat, etc., from Monday, July 14, to Friday, July 18. The course is intended for such people as estate and mine managers and their assistants, and all those whose work in the tropics makes them responsible for the health and welfare of others. Persons proposing to attend should contact as soon as possible the Organizing Secretary, Mr. L. G. Ponsford, Ross Institute of Tropical Hygiene, Keppel Street, Gower Street, London, W.C.1. Telephone: Mus. 3041/4.

Mond Nickel Fellowships.—The Mond Nickel Fellowships Committee now invites applications for five Fellowships of average value of £750 each for 1952. Fellowships will be awarded to selected candidates of British Nationality with degree or equivalent qualifications to enable them to obtain wider experience and additional training in industrial establishments, at home or abroad, to make them more suitable for future employment in senior technical and administrative positions in British Metallurgical Industries. Each Fellowship will cover one full working year. Applicants will be required to state details of the programme they wish to carry out. Particulars and forms of application are available from: The Secretary, Mond Nickel Fellowships Committee, 4 Grosvenor Gardens, London, S.W.1. Completed application forms are required by 1st June, 1952.

W. E. SINCLAIR, M.I.M.M.

Consulting Mining Engineer
South & East Africa & Rhodesia
P.O. Box 113. JOHANNESBURG

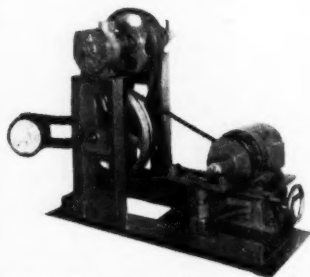
NATIONAL COAL BOARD.—Applications are invited from suitably qualified engineers for appointment as **POWER GENERATION ENGINEER** in the Mechanical and Electrical Engineering Branch of Production Department at London Headquarters. Candidates should have had experience in the design and construction of modern power stations and coal handling plant, and should have some knowledge of transmission and distribution problems.

Salary will be in the range of £1,250-£2,000 per annum, according to qualifications and experience.

Apply in writing, giving full particulars (in chronological order) of age, education, qualifications and experience (with dates) to National Coal Board, Establishments (Personnel), Hobart House, Grosvenor Place, London, S.W.1, marking envelope TT/447. Original testimonials should NOT be forwarded. Closing date April 19, 1952.

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ANGLO-FRENCH EXPLORATION

PRICE OF GOLD

The Sixty-Second Annual General Meeting of The Anglo-French Exploration Co. Ltd. was held on April 2 in London. The Chairman, Mr. F. R. Cottell, A.C.A., in the course of his speech said:—

Our investments stand in the books at £962,018 and are valued at £1,236,458, an excess of £274,440.

The following is a broad classification of our investments based on the valuation at December 31 last: Gold Mining (including holding companies which have substantial interests in gold mining companies) 59 per cent; Oil 12.3 per cent; Copper, Lead and Zinc 10.4 per cent; Tin 10.3 per cent; Coal 7.8 per cent; Miscellaneous 0.2 per cent.

The most satisfactory feature of the profit and loss account is the material increase in the receipts from dividends and interest which have risen from £50,912 to £71,976. Consequently, despite the reduction in profits from sales of farms and also from sales of shares, our gross revenue shows a welcome addition of over £14,000.

Taxation again takes an undue proportion of our income, the provision for the year being £44,569 against £38,328 for 1950.

The profit is £33,833, and we recommend the payment of a dividend of 7½ per cent on the increased capital of £800,000 which will require £31,500.

Members will be aware that at the three previous meetings of the company I have expressed my views on the policy of the International Monetary Fund, which continues to be to hold down the price of gold at an artificially low level in terms of depreciated currencies and in relation to commodity prices. This country, in particular, has continued to suffer from a series of financial and trade crises, materials shortages and inflation, and no success was attained by the half-hearted effort in past years to solve the underlying causes of these recurring setbacks to the recovery of the nation's prosperity. Now the future stability of the sterling area as a whole is in danger and further efforts are being made to achieve a balance in our trade, which it must be hoped will be more successful than the earlier attempts. However, some of the steps which are being taken are mainly with a view to correcting the short term position and a longer term objective in order to improve our trade is the convertibility of sterling; this is impossible of achievement until our reserves of gold have been substantially increased. In this connection I would refer you to a recent report prepared by the United Nations entitled "Measures for International Economic Stability" which advocates changes in the structure and policies of the International Monetary Fund. The report states that the existing reserves of most countries are not in general adequate to enable them to maintain a reasonably stable flow of imports and that the International Monetary Fund provides only a comparatively trivial supplement to national reserves. The report acknowledges that one of the ways to raise reserves to a more adequate level would be by raising the price of gold uniformly in terms of all currencies, as provided in the articles of agreement of the International Monetary Fund. The report also states that the official price of gold measured in dollars is no higher than before the war, while prices in international trade have doubled, and that the effectiveness of a given gold reserve as a buffer against trade fluctuations has been halved. However, the conclusion is reached by the authors of the report that, whatever the balance of the economic arguments, a change in the price of gold raises many political problems, and they have thought it appropriate to restrict their analysis to other methods of raising reserves to a more adequate level, although they acknowledge that such other methods also raise difficult questions for governments. In my opinion it is particularly unfortunate, and perhaps significant, that the political problems are not disclosed and explored and that the authors of the report fail altogether to examine the possibilities of increasing the price of gold in all currencies whereby reserves would be raised to a more adequate level to deal with trade fluctuations. I am far from claiming that such a world increase in the gold price would solve present day economic problems but I do believe it would materially assist the achievement of that desirable object and it is to be noted that some well known authorities in this country, in the Commonwealth and even in the United States of America are now advocating an upward revision in the price of gold. It is to be hoped that the International Monetary Fund and the United States' authorities, in whose hands any decision will rest, will take steps with a view to effecting this change and that they will not delay action until they are perhaps forced to do so by a serious recession in trade.

During the year I visited South Africa and renewed personal contact with the members of our Johannesburg organisation and with members of leading mining houses in that city, to whom I am indebted for the facilities which were put at my disposal. I was much impressed with the continuing progress of the gold mining industry in South Africa.

The report was adopted.

ZAMBESIA EXPLORING CO.

SATISFACTORY RESULTS

SIR ULICK ALEXANDER ON EXCESS PROFITS LEVY

The Annual General Meeting of The Zambia Exploring Co. Ltd. was held on April 2 at 20, Aldermanbury, London, E.C.2, the Rt. Hon. Sir Ulick Alexander, P.C., G.C.V.O., K.C.B., C.M.G., O.B.E. (the chairman) presiding.

The following is an extract from his circulated review:—

The accounts for the year again reveal a very satisfactory record, resulting in a profit, after deduction of United Kingdom taxation, of £91,609. After adding the balance of £81,931 carried forward from 1950, and the sum of £13,540 representing provision of previous years no longer required, a total of £187,080 remained available for distribution. Out of this total an interim dividend of 4 per cent, less tax, has been paid, and provision has been made for a proposed final dividend of 6 per cent and bonus of 10 per cent, both less tax, leaving a balance of £96,220 to be carried forward. In addition, the profit and loss account for the year of your wholly-owned subsidiary, The Zambia Investment Co. Ltd., shows an unappropriated profit of £24,043 carried forward to the next accounts.

It must be emphasized that, as the balance of losses brought forward for profits tax purposes was sufficient to extinguish any liability for profits tax in the accounts for the year ended December 31, 1951, no provision fell to be made in this respect. These losses are now used up, and future profits will accordingly be liable to profits tax. Your directors are advised that if no losses had been brought forward for profits tax purposes, the company's liability to United Kingdom taxation would have been increased by approximately £40,000, and this consideration should be borne in mind when appreciating future possibilities.

Stockholders will also understand that the profit realized during the year on sale of stocks and shares totalling £122,305 will not necessarily be repeated every year. At the same time it is fair to point out that the market value of the Quoted Shares at December 31, 1951, was only slightly less than the corresponding figure at the beginning of the year under review.

CHAIRMAN'S ADDITIONAL REMARKS

Addressing the meeting the chairman said: I should like to add to the remarks made in my review (circulated with the report and accounts) the statement that while the impact on the company's business of the Chancellor's Budget provisions regarding taxation cannot be accurately estimated until the passing of the Finance Act, it appears that the standard of profits for assessment to the Excess Profits Levy of the company and its subsidiary will be about £125,000.

Your company will be unfairly treated if the provisions of the Ninth Schedule of the Finance Bill are not amended. This Schedule lays down the general rules for ascertaining undistributed profits since January 1, 1948. In broad terms this amounts to taking one half of the profits and comparing that figure with the net dividends paid in the period from January 1, 1948, to December 31, 1951. In taking one half of the profits, the Treasury are presuming that the other half has gone, 47½ per cent in income tax, and 2½ per cent in undistributed profits tax, but during the period in question your company was not in fact paying income tax or profits tax, owing to the fact that taxation losses incurred during the war period were brought forward and set off against profits earned during the period January 1, 1948, to December 31, 1951.

We thus have a position whereby the accounts of the company show that since January 1, 1948, your company has under-distributed to the extent of £100,000, whereas the provisions of the Ninth Schedule result in the conclusion that during that period we over-distributed profits to the tune of £50,000. This results in our standard for Excess Profits Levy being £15,000 less than it should be by any reasonable computation, and representations will be made to the Chancellor of the Exchequer for the removal of this anomaly during the Committee Stages.

The report and accounts were adopted, and a special resolution to amend the Articles of Association governing the remuneration of the directors was also approved.

DIVIDENDS

British Tin Investment Corporation 18%
Harrisons & Crossfield 7½% (April 10)
Ipoh Tin Dredging 7 13-16 (April 17)
Kinta Tin Mines 10% (April 10)
Malayan Tin Dredging 6d. (April 30)
S. Malayan Tin Dredging 1s. 3d. (April 28)
Sungei Besi Mines 25% (April 17)
Tronoh Mines 1s. 9d. (April 7)
Zambia Exploring 16% (April 8)

AMALGAMATED COLLIERIES OF SOUTH AFRICA

The Sixteenth Annual General Meeting of Amalgamated Collieries of South Africa Ltd., will be held in Johannesburg on May 1.

The following is an extract from a statement by the chairman, Mr. T. Coulter, dated March 27, 1952, circulated with the annual report and accounts for the year ended December 31, 1951:—

The issued capital was increased from £2,530,000 to £2,860,000 by the issue during the year of 330,000 shares under option to African and European Investment Company Ltd., as consideration for granting loan facilities up to £900,000.

In order to provide your company with the necessary funds to enable it to subscribe for its interest in a new colliery styled "New Largo Colliery Ltd." and to complete various other new works, arrangements were concluded in terms of which the Vereeniging Estates Ltd., agreed to provide as and when required additional funds on loan bearing interest at the rate of 5 per cent per annum up to an amount of £650,000, repayable on or before January 1, 1958. Under these new arrangements the Vereeniging Estates Ltd., took over the option held by African and European Investment Company Ltd., and subscribed forthwith for the above-mentioned 330,000 shares at 5s. per share to enable repayment of the loan from African and European Investment Company Ltd., to be effected.

Net profits earned by your company during the year amounted to £521,806, as against £474,355 in the previous year.

Dividend distributions were maintained at 15 per cent on the higher issued capital of £2,860,000 and absorbed £412,500.

The balance sheet shows that the total expenditure on fixed assets at December 31, 1951, including shareholdings in and loans to subsidiary and other companies, was £5,305,445. The comparable figure at the end of 1950 was £4,688,996.

From time to time in the past I have given you a brief report on our development and replacement plans and there follows some further information indicating the progress made to date.

Dealing first with Cornelia Colliery, the Bertha No. 2 shaft, which was designed to meet the requirements of the additional generating sets of the Vaal Power Station, came into production in October, 1951. Subject to delivery dates of power station equipment, it is expected that the rate of production from this new pit will rise during the next 18 months to an output of the order of 1,200,000 sales tons of coal per annum.

Referring now to the other directly operated colliery, Schoongezicht, work on the replacements of this pit on a section of the coalfield owned by Witbank Coal Holdings Ltd., in the Middelburg District has proceeded, and we expect that production will commence in the second half of 1952.

BLESBOK COLLIERY LTD.

Your company holds a considerable interest in this company. The sales output for the year 1951 amounted to 464,937 tons and dividends totalling 6½d. per share on the 5s. shares were paid.

NEW LARGO COLLIERY LTD.

Your company has acquired a substantial interest in this new colliery company, which has been established on the Balmoral-Kendal coalfield of Witbank Coal Holdings Ltd., situated about seven miles north of Abor station on the Germiston-Witbank railway line. Production on a relatively low scale of the order of 50,000 tons per month is expected to commence early in 1953, and this will probably rise, in due course, to the planned capacity of some 2,000,000 tons per annum in 1955-1956.

During the year 1951 the collieries of the Union of South Africa produced and sold 28,767,732 tons of coal, compared with 29,181,801 tons for the year 1950, showing a decrease of 414,069 tons. Your group of collieries, together with associates within the Anglo American Corporation group, accounted for 11,833,403 tons, equal to 41.13 per cent of the total Union production.

Insofar as the Transvaal coal industry is concerned two severe setbacks were encountered during the year; firstly the industry suffered a 37½ per cent increase in direct taxation when the rate of tax was increased in the 1951 Budget from 4s. to 5s. 6d. in the £; secondly, the inland coal crisis which developed last winter, compelled the South African Railways Administration to remove from the Witbank-Lourenço Marques line the rolling stock which had been engaged in exporting coal.

The loss of the export trade which has for many years subsidised inland prices called for early revision of the latter, but it was not until October 1 last that the collieries were awarded a new price of 8s. per ton at the pitsmouth. This increase did not adequately compensate for the loss of the remunerative export trade and, furthermore, it was a common price irrespective of whether the quality of coal was good, bad or indifferent. The industry is pressing for the removal of this anomalous situation and there can be no doubt that consumers who are purchasers of heat will support us in our claim for differential prices based on calorific values.

ENGLISH ELECTRIC CO.

ALL PREVIOUS RECORDS SURPASSED

The Thirty-Third Annual General Meeting of the English Electric Co. Ltd. was held on March 27 in London. Sir George H. Nelson, F.C.G.I., M.I.Mech.E., M.I.E.E. (Chairman and Managing Director) presided, and in the course of his speech, said:—

Turnover and production have again been substantially increased in volume and value during the year and the net profit has risen by £203,984 to £1,132,550, thus in all respects creating records over past achievements.

The expansion of the company's business, the rising costs on both capital and revenue accounts, and the absence of depreciation allowances adequate to meet the fall in the purchasing power of the £ in terms of the replacement of plant, make it wise, in the interests of the shareholders, to follow a conservative profit distribution policy.

It is proposed, therefore, to transfer £550,000 to the general reserve, and to pay a final dividend of 10 per cent, less income-tax, on the Ordinary stock for the year ending December 29, 1951, making, with the interim dividend, a total of 15 per cent, less income-tax, for the year, leaving the carry-forward at £477,186, which is £188,434 more than last year.

INCREASED EXPORTS

By heavy capital expenditure after the war on plant and research equipment, by intensive selling efforts in our markets throughout the world, and stupendous efforts by our production executives, the company has increased its turnover since 1946 by £24,000,000 and raised the percentage of its exports from 20 per cent before the war to 50 per cent of a vastly greater volume of business to-day.

Our company now has works in Canada, South Africa and Australia, which act as springboards from which the results of our vast research and development activity in this country can be made available for the development of the economic resources of those countries to further the economic and strategic strength of the Commonwealth.

We shall continue to make every possible contribution to build up industry and to foster the exchange of commodities within the Commonwealth so that the interests of each country can be dovetailed into the economy of the whole, and so approach the ideal of a single economic unit.

In Canada our subsidiary, John Inglis Co. Ltd., raised further capital to finance its expanding business. Your company has taken up slightly more than its due proportion of these new shares, and we now own a 54 per cent interest in the Canadian group.

In South Africa production at our Benoni works has again increased, but costs there are still higher than in this country. We are fortunate that our South African company continues to receive substantial orders for power plant, transformers and switchgear made in the United Kingdom.

MINING EQUIPMENT

Among our many important contracts for mining equipment completed during the year are two 4,040 h.p. twin a.c. winders and two 1,340 h.p. a.c. winders, all for South Africa.

Those under construction include a 3,950 h.p. twin Ward Leonard winder and a 1,725 h.p. a.c. winder for the National Coal Board, North Eastern Division, which form part of a large reorganization scheme and a Ward Leonard winder for the Norseman Gold Mines Ltd. of Australia.

In Australia our new factory at Brisbane continues to increase its output, but costs have increased here, too; the flow of orders on the home works for the Australian market has steadily continued. In spite of the new restrictions on imports of domestic products, there is no restriction or substantial recession in demand for capital goods for which Australia has placed substantial orders with us.

RESEARCH AND DEVELOPMENT

I have referred to some of the fields of research and development in which we are engaged. To give you an overall picture of its measure, I would say that we now employ about 6,000 people, scientists, designers, engineers, draughtsmen and craftsmen for our own and sponsored research and associated design and development, involving an expenditure of £6,250,000 per annum.

The accounts of D. Napier & Son Ltd. show a substantially increased net profit.

The Marconi's Wireless Telegraph Co. Ltd. and The Marconi International Marine Communication Co. Ltd. have both again had a successful year.

The report and accounts were unanimously adopted.

At a subsequent extra-ordinary general meeting the proposed increase of the company's authorized capital to £10,000,000 by the creation of a further 2,000,000 Ordinary shares of £1 each was approved.

DURBAN ROODEPOORT DEEP, LTD.

(Incorporated in the Union of South Africa.)

Extracted from the Annual Report for the Year Ended December 31, 1951

CAPITAL—£1,200,000 in 10s. Shares, £1,162,500 issued, fully paid
Tons Milled.....2,150,000

Total Working Revenue	£4,838,681	Per ton milled	£2 5 0
Total Working Expenditure	3,416,997		1 11 8
Working Profit	£1,421,684		£0 13 3

Net Profit for the year	£1,413,851
Balance unappropriated at December 31, 1950	725,452
Transfer from Shareholders' Contingency Reserve	1,200
	£2,140,503

This amount has been dealt with as follows:—	
Funds Transferred for Capital Expenditure	£234,162
Taxation	456,801
Forfeited Dividends Account	1,205
Dividends declared during the year—No. 81 of 2s. 6d. per share and No. 62 of 2s. 6d. per share	581,250
	1,273,418

Leaving an unappropriated balance of.....£867,085
The ore reserve was re-estimated, as at December 31, 1951, as follows:

REEF	AVAILABLE			SHAFT AND SAFETY PILLARS			TOTAL		
	Tons (000s)	Value Dwt. Inches	Width (000s)	Tons (000s)	Value Dwt. Inches	Width (000s)	Tons (000s)	Value Dwt. Inches	Width (000s)
Main Reef	6,024	4.5	65.1	685	4.2	67.5	6,709	4.5	65.3
Main Reef Leader	35	6.4	39.3	22	3.7	40.5	57	5.4	39.8
South Reef	1,185	3.5	42.1	122	4.4	41.3	1,307	3.6	42.0
Kimberley Reef	1,304	3.2	67.9	—	—	—	1,304	3.2	67.9
Total ...	8,548	4.2	60.7	829	4.2	60.7	9,377	4.2	60.7

Compared with the previous year the available reserve decreased by 784,000 tons, the value being unaltered.

The full Report and Accounts may be obtained from the London Secretaries, A. MOIR & CO., 4, London Wall Buildings, E.C.2.

ROSE DEEP, LIMITED

(Incorporated in the Union of South Africa)

Extracted from the Annual Report for the Year Ended 31st December, 1951

Authorised and Issued Capital £700,000 in £1 Shares, fully paid
Tons milled 993,000

Total Working Revenue	£1,830,463	Per ton milled	£1 16 11
Total Working Expenditure	1,501,322		1 10 3
Working Profit	£329,141		£0 6 8

Total Profit for the year	£342,967
Balance unappropriated at 31st December, 1950	159,734
Transfer from Shareholders' Contingency Reserve	300
	£502,901

This amount has been dealt with as follows:—	
Funds Transferred for Capital Expenditure	£3,842
Taxation	117,933
Forfeited Dividends Account	235
Dividends declared during the years Nos. 92 of 2s. 9d. per share and 93 of 2s. 6d. per share	183,750
	305,780

Leaving a balance unappropriated of.....£197,121
The ore reserve re-estimated at 31st December, 1951, was as follows:

REEF	AVAILABLE			SHAFT AND SAFETY PILLARS			TOTAL		
	Tons (000s)	Value Dwt. Inches	Width (000s)	Tons (000s)	Value Dwt. Inches	Width (000s)	Tons (000s)	Value Dwt. Inches	Width (000s)
Main Reef	1,087	3.5	62.2	41	4.1	65.2	1,128	3.5	62.3
Main Reef Leader	129	3.6	51.0	73	3.6	56.8	202	3.6	52.9
Composite Reef	166	3.6	54.6	110	5.1	56.7	276	4.2	55.4
South Reef	701	3.4	56.6	109	4.3	60.3	810	3.6	57.0
Total ...	2,083	3.5	58.8	333	4.4	58.8	2,416	3.6	58.8

Compared with the previous year's estimate, the available reserve decreased by 281,000 tons, the value being 0.1 dwt. higher and the width 0.9 in. greater. Of this decrease 263,000 tons was due to a change in the estimated pay limit caused by higher working costs.

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